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that has a relative permeability greater than one for an operating frequency range; and
 inducing a loop output voltage in the loop antenna based, at least in part, on the increased magnetic flux density, wherein the incident electromagnetic wave is horizontally polarized, a loop axis of the loop antenna is vertically oriented and the operating frequency range is 54 MHz (megahertz) to 890 MHz.

7. The method of claim 6, further comprising at least one of amplifying the loop output voltage or amplifying a loop output current related to the loop output voltage using an amplifier coupled to the loop antenna.

8. The method of claim 6, wherein a circumference of the loop antenna is less than or equal to one tenth of a wavelength of a maximum operating frequency of the antenna system.

9. The method of claim 6, further comprising providing an output signal related to the loop output voltage to a receiver coupled to the loop antenna.

10. A system comprising:

a receiver; and

an antenna system coupled to the receiver, the antenna system comprising a loop antenna comprising a conductor, and a magnetic gain element positioned in an aperture defined by the loop antenna, the magnetic gain element comprising a magnetic material that has a relative permeability greater than one for an operating frequency range, the magnetic gain element configured to

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increase a magnetic flux density associated with a received magnetic-field component of an incident electromagnetic wave, wherein the incident electromagnetic wave is horizontally polarized, a loop axis of the loop antenna is vertically oriented and the operating frequency range is 54 MHz (megahertz) to 890 MHz, wherein a loop output voltage induced in the loop antenna is based, at least in part, on the increased magnetic flux density and the receiver is configured to receive an input signal related to the loop output voltage.

11. The system of claim 10, wherein the antenna system further comprises an amplifier coupled to the loop antenna, the amplifier configured to at least one of amplify the loop output voltage, amplify a loop output current related to the loop output voltage or provide an output impedance corresponding to a characteristic impedance of a transmission line configured to couple the antenna system to the receiver.

12. The system of claim 11, wherein the amplifier is positioned adjacent to loop antenna terminals.

13. The system of claim 10, wherein a circumference of the loop antenna is less than or equal to one tenth of a wavelength of a maximum operating frequency of the antenna system.

14. The system of claim 10, wherein a thickness of the magnetic gain element is greater than or equal to a diameter of the conductor.

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